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U.S. Patent Application No. 10/562,696
Response to Office Action of February 17, 2010

PATENTAMENDMENTS TO THE CLAIMS:

Applicant hereby cancels Claims 1-13 and amends Claims 14, 16-17, 21, and 24-27 as indicated below. The following listing of claims will replace all prior versions and listings of claims in the application.

LISTING OF CLAIMS:

1-13. (Cancelled)

14. (Currently Amended) A communications network comprising a plurality of terminals, one or more switching hubs that learn respective MAC (Media Access Control) addresses of the terminals in communication with each other and configure a single path between learned terminals, and network resource management means configuring a path traversing any one or more of the one or more switching hubs between the a call request terminal and the a call requested terminal amongst the plurality of terminals, wherein:

each one of the plurality of terminals comprises: means for transmitting a call request containing information on the transmission capacity whose allocation is requested in order to perform communication, along with its own terminal address and the address of the call requested terminal, when the terminal itself operates as a call request terminal; means for transmitting a receive acknowledgement when it is itself communication-enabled, and a call rejection when it is itself communication-disabled, to the call request terminal associated with a call request via the network resource management means when a call request is received and the terminal itself operates as a call requested terminal; means for recognizing that communication with guaranteed transmission capacity has been established and initiating transmission of data frames to the call requested terminal upon receipt of a receive acknowledgement from the call requested terminal when operating as a call request terminal; and means for transmitting a clear request to a peer terminal via the network resource management means upon completion of communication; and

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the network resource management means comprises: means for storing the connection between the terminals and the switching hubs, as well as between the switching hubs, and the transmission capacity of the transmission links associated with this connection; means for consulting the storage means in response to a call request from a call request terminal and making an assessment as to whether the transmission capacity to be used can be assured along a path traversing switching hubs between a call request terminal and a call requested terminal; means for increasing the transmission capacity to be used in the storage means by an amount corresponding to said assurance and transmitting a call request from said call request terminal to said call requested terminal if, in accordance with the assessment results of the assessment means, it can be assured, or transmitting an incoming call rejection to said call request terminal if it cannot be assured; means for forwarding a receive acknowledgement or a call rejection from the call requested terminal to the corresponding call request terminal; means for releasing transmission capacity assured for the call request associated with the call rejection and withdrawing it from the storage means when a call rejection is received from the call requested terminal; and means for releasing transmission capacity assured for the call request and withdrawing it from the storage means when a clear request is received from the other terminal participating in communication-in case ~~transmission capacity corresponding to the clear request has been assured; and~~

said call requested terminal, prior to receiving a stream data delivery service, issues a notification of completion of preparations for receiving the delivery service using a broadcast frame or a frame destined for said call request terminal to make said switching hubs learn the MAC address of said call requested terminal.

15. (Original) The communications network according to claim 14, wherein the network resource management means is provided in any one of the one or more switching hubs.

16. (Currently Amended) The communications network according to claim 14, wherein one or more switching hubs are connected to the a tree structure, ~~with the network resource management means located in the vicinity of the root (root) of the tree structure.~~

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17. (Currently Amended) The communications network according to claim 14, wherein:
the plurality of terminals are terminals compliant with frames having guaranteed maximum transmission capacity and,
on the network, Best-Effort type terminals compliant only with frames having no guaranteed maximum transmission capacity may co-exist therewith and
the terminals compliant with frames having guaranteed maximum transmission capacity ~~can have~~ and having means for appending priority markings to frames with guaranteed transmission capacity.
18. (Original) The communications network according to claim 17, wherein:
each of the switching hubs comprises means for sending input frames, if the input frames have priority markings, to transmission links in preference to input frames without priority markings.
19. (Original) The communications network according to claim 18, wherein:
each of the switching hubs comprises means which, whenever input frames have priority markings and the destination MAC addresses have been learned, sends said input frames to transmission links in preference to input frames without priority markings.
20. (Original) The communications network according to claim 18, wherein each of the switching hubs comprises means for processing the MAC address learning of priority-marked frames in preference to frames without priority markings.
21. (Currently Amended) The communications network according to claim 17, wherein the three bits of TCI (Tag Control Information) that represent priority are used for priority indication.

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22. (Original) The communications network according to claim 21, wherein means for attaching or removing TCI from non-TCI-compliant frames is provided in switching hubs at the edge of the network.

23. (Original) The communications network according to claim 18, wherein each one of the switching hubs comprises means for sending a PAUSE frame that halts transmission to the corresponding input transmission links when the buffer size of frames not subject to priority processing becomes equal to or more than a predetermined value Th_{max} and sending a PAUSE frame that disables the suspension of transmission to the corresponding transmission links when a predetermined value Th_{min} ($Th_{max} > Th_{min}$) is reached.

24. (Currently Amended) The communications network according to claim 18, wherein each one of the switching hubs comprises means for configuring ~~the~~ a threshold value of ~~the~~ an input frame rate of one or more ports connected to the terminals manually or via access by the network resource management means, as well as means for handling frames with priority markings and frame rates exceeding the threshold value as non-priority frames.

25. (Currently Amended) The communications network according to claim 18, wherein, amongst the switching hubs, hubs at ~~the~~ an edge of the network comprise means which, upon receipt of a notification of source MAC addresses and destination MAC addresses for which ~~the~~ a maximum transmission capacity is guaranteed from the network resource management means, ~~activates~~ insert the priority processing markings of into frames with these MAC addresses, and, upon receipt of a notification of MAC addresses without guaranteed maximum transmission capacity from the network resource management means, ~~removes~~ remove the priority processing markings of from the frames with these MAC addresses.

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26. (Currently Amended) An Ethernet network comprising Ethernet terminals, switching hubs with a MAC (Media Access Control) address learning function and a network resource management device for configuring a path traversing one or more transmission links and one or more of said switching hubs between said terminals on a network,

wherein the terminals are terminals comprising means for reserving transmission capacity to be used upon a call request,

the switching hubs are switching hubs with an MAC address learning function that learn the respective MAC (Media Access Control) addresses of terminals in communication with each other and configure a single path between the learned terminals,

wherein with the said network resource management device comprising comprises:

storage means for storing information of connections between the said terminals and the said switching hubs, as well as between the said switching hubs, and the transmission capacity of the transmission links associated with the said connections;

assessment means for consulting the said storage means in response to the a call request from the a call request terminal and making an assessment as to whether the transmission capacity to be used can be assured along the a path traversing switching hubs between the said call request terminal and the said call requested terminal;

means for increasing the transmission capacity to be used in the said storage means by an amount corresponding to said assurance and transmitting a the call request from said call request terminal to said call requested terminal if, in accordance with the assessment results of the said assessment means, it can be assured, or transmitting an incoming call rejection to said call request terminal if it cannot be assured;

means for forwarding a receive acknowledgement or a call rejection from the call requested terminal to the corresponding call request terminal; and

means for releasing transmission capacity assured for the said call request associated with the call rejection and withdrawing it from the said storage means when a call rejection is received from the said call requested terminal;

and means for releasing transmission capacity assured for said call request and withdrawing it from the said storage means when a clear request is received from the other a

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terminal participating in communication in case transmission capacity corresponding to the clear request has been assured;

and wherein, said call requested terminal, prior to receiving a stream data delivery service, issues a notification of completion of preparations for receiving the delivery service using a broadcast frame or a frame destined for said call request terminal to make said switching hubs learn the MAC address of said call requested terminal.

27. (Currently Amended) The network resource management device according to claim 26, comprising means for managing the usage status of VLAN identifiers, each VLAN identifier comprising represented by TCI (Tag Control Information), wherein:

the managing means includes:

means for attaching a VLAN tag containing TCI corresponding to an unused VLAN identifier to a receive acknowledgement when a receive acknowledgement is forwarded from the call requested terminal to the call request terminal;

means for storing the VLAN identifier corresponding to the attached VLAN tag as being in use; and

means which, upon receipt of a clear request with the VLAN tag attached thereto, stores the VLAN identifier as being unused.